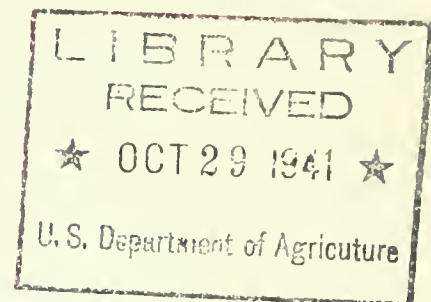


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LIBERATIONS OF EUROPEAN CORN BORER PARASITES

IN THE UNITED STATES IN 1941 ^{1/}

By Charles A. Clark

Division of Cereal and Forage Insect Investigations
Bureau of Entomology and Plant Quarantine
United States Department of Agriculture

During 1941 a total of 66,004 adults of 4 parasite species -- Chelonus annulipes Wesm., Inareolata punctoria Roman, Lydella grisescens R. D., and Macrocentrus gifuensis Ashm. -- were liberated against the European corn borer in the United States. All parasites liberated were reared from corn borer larvae collected in Massachusetts and Connecticut in localities where these exotic species are well established.

The corn borer parasite colonization program for 1941 stressed the distribution of the polyembryonic braconid Macrocentrus gifuensis in the Atlantic Coast States from New York to Virginia. Particular emphasis was placed on the colonization of this species on the Eastern Shore of Virginia. Thirteen colonies totaling over 25,000 adults of this parasite were released in Accomac and Northampton Counties, Va., in 1941. Releases of this species in these 2 counties were made at intervals of approximately 6 miles. For the remainder of the area covered, releases were on the basis of 1 colony, of approximately 2,000 adults of both sexes, per county.

Adults of M. gifuensis were released in 1 county in New York (on Long Island), 5 counties in New Jersey, 2 counties in Pennsylvania, 3 counties in Delaware, 3 counties in Maryland, and 3 counties in Virginia. Releases of this species totaled 59,505 adults in 1941.

Colonies of the larval parasite Inareolata punctoria were released in Burlington County, N. J., Somerset and Worcester Counties, Md., and Princess Anne County, Va. Releases of this species totaled 3,122 adults.

The tachinid Lydella grisescens was released in Sussex County, Del., and in Princess Anne County, Va. A total of 2,439 adults of this species was liberated in 1941.

^{1/}

For previous releases of European corn borer parasites in the United States see Insect Pest Survey Bul. Sup. to No. 9, v. 18 (1938), v. 19 (1939), and v. 20 (1940).

The egg-larval parasite Chelonus annulipes was released in Burlington County, N. J., and in Princess Anne County, Va. A total of 938 adults was liberated.

Table 1 lists corn borer parasite liberations by species for the various States and counties in which releases were made in 1941.

Most of the parasite releases were made on the first generation of the borer, except in the case of Chelonus annulipes in Princess Anne County, Va., and some releases of Inareolata punctaria and Macrocentrus gifuensis in Burlington County, N. J. These releases were made against the second generation of the host insect.

All releases were accomplished at a time to synchronize with the proper stage of development of the host larvae in the field, except for the release of C. annulipes in Princess Anne County, Va., which was made possibly a week too early; however, small numbers of host eggs were present in the field at the time of this release.

Table 1.—Summary of liberations of corn borer parasites in the United States in 1941

Species	State	County	Date of release	Adults released
				Number
C. annulipes	New Jersey	Burlington	June 2	327
Do	Virginia	Princess Anne	June 20	611
Subtotal	--	--	--	938
I. punctoria	Maryland	Somerset	May 31	591
Do	do.	Worcester	June 1	596
Do	New Jersey	Burlington	June 14-18	276
Do	do.	do.	Aug. 7-11	167
Do	Virginia	Princess Anne	June 1-9	1,492
Subtotal	--	--	--	3,122
L. griseascens	Delaware	Sussex	June 14	197
Do	Virginia	Princess Anne	May 23-June 10	2,242
Subtotal	--	--	--	2,439
M. gifuensis	Delaware	Kent	June 14	1,981
Do	do.	New Castle	June 14	1,984
Do	do.	Sussex	June 14	1,979
Do	Maryland	Somerset	May 31	1,988
Do	do.	Wicomico	May 31	1,982
Do	do.	Worcester	June 1	1,979
Do	New Jersey	Burlington	June 21	2,512
Do	do.	Burlington	Aug. 7-15	2,120
Do	do.	Cape May	June 16	1,989
Do	do.	Cumberland	June 16	1,994
Do	do.	Essex	June 18	1,993
Do	do.	Salem	June 16	1,988
Do	New York	Nassau	June 18	1,982
Do	Pennsylvania	Bucks	June 16	1,992
Do	do.	Centre	June 19	1,988
Do	Virginia	Accomac	June 1-14	15,350
Do	do.	Northampton	May 28-June 1	9,930
Do	do.	Princess Anne	May 29-June 10	3,774
Subtotal	--	--	--	59,505
Total	--	--	--	66,004

The number of adults handled in shipments for release in 1941 was 67,355. Of this number only 1,351, or 2.0 percent, died during collection, packing, and shipment. The mortality in shipments of Macrocentrus gifuensis was less than usual for this very delicate species, probably because most of these parasites were taken to the point of release by automobile and promptly liberated. Mortality was high in only 1 shipment, this being a railway-express shipment of 4,000 M. gifuensis to Virginia. This consignment was

delayed 22 hours en route and the mortality in the lot was 12.3 percent. Table 2 shows handling and shipping mortality by species in 1941.

Table 2.--Mortality in shipments of corn borer parasites for field release, 1941

Species	: Adults	Mortality	
	: shipped	: Number	: Percent
<i>Chelonus annulipes</i> -----:	958	20	2.1
<i>Inareolata punctoria</i> -----:	3,209	87	2.7
<i>Lydella grisescens</i> -----:	2,458	19	0.8
<i>Macrocentrus gifuensis</i> -----:	60,730	1,225	2.0
Total-----:	67,355	1,351	2.0

During the period March 24-31, 1941, a total of 12,850 adults of the larval parasite *M. gifuensis* was shipped to the Dominion Parasite Laboratory at Belleville, Ontario, Canada, for experimental work at that laboratory. The mortality in these shipments was 2.5 percent.

SUMMARY

A total of 66,004 European corn borer parasites was released in the United States in 1941. Of this number 59,505 were adults of the polyembryonic braconid *Macrocentrus gifuensis* Ashm. Other parasites released in smaller numbers included *Chelonus annulipes* Wesm., *Inareolata punctoria* Roman, and *Lydella grisescens* R. D.

Parasite releases in 1941 were confined to the Atlantic Coast States from New York (Long Island) to Virginia, inclusive. Special emphasis was placed on parasite colonization on the Eastern Shore of Virginia and in Princess Anne County, Va., where the corn borer has been very abundant recently and has caused serious damage.

All parasites released were reared from borers collected in Massachusetts and Connecticut, where these exotic parasites are now well established.

Mortality of parasite adults handled for release in 1941 in the United States was 2.0 percent.

Over 12,000 adults of *M. gifuensis* were shipped to the Dominion Parasite Laboratory in Canada.